

**OBJECTIVES:** To illustrate the relationships among sensitivity/specificity, disease prevalence and PPV/NPV, and demonstrate the impact on model results when disease prevalence is not considered. **METHODS:** Using the literature on the sensitivity and specificity of single-photon emission computed tomography (SPECT) and positron emission tomography (PET) for detecting coronary artery disease as an example, we derive the PPV/NPV taking prevalence into account. Then we derive the rate of FN and FP from the reported mean sensitivity/specificity as well as from the varying PPV/NPV. **RESULTS:** Mean sensitivity and specificity for PET were 0.9 and 0.83, with associated FN and FP of 0.1 and 0.17. When using PPV/NPV to derive FN and FP, FN ranged from 0.05 to 0.22 when prevalence varied from 0.3 to 0.7, while FP ranged from 0.31 to 0.07. Sensitivity and specificity for SPECT were reported as 0.85 and 0.72, with associated FN and FP of 0.15 and 0.28. Using PPV/NPV and a prevalence range from 0.3 to 0.7, FN varied from 0.08 to 0.33 and FP varied from 0.43 to 0.12. **CONCLUSIONS:** Models results can be significantly biased if prevalence is not taken into account when deriving FN and FP for economic models of diagnostic accuracy.

#### PMD41

#### SELECTING A SECONDARY DATA SOURCE FOR A LOW-VOLUME PROCEDURE IN A SPECIALTY POPULATION: A STUDY USING INPATIENT PEDIATRIC COLONOSCOPY

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**OBJECTIVES:** The objective of this study was to compare estimates from survey and claims data sources for a low-volume procedure within a specialty population (specifically, the annual number of inpatient colonoscopies performed in the United States (US) pediatric population with private insurance) to better understand the considerations when choosing a data source. **METHODS:** A retrospective analysis of US health insurance claims and national survey data was performed using Thomson Reuters MarketScan® Commercial Claims and Encounters Database (MarketScan®), the National Hospital Discharge Survey (NHDS), and the National Healthcare Cost and Utilization Project Kids' Inpatient Database (KID). Estimates among the privately-insured were obtained overall and by age (0 to 17 years), using ICD-9-CM procedure code 45.23 for calendar year 2007 in MarketScan® and NHDS and 2006 in KID (2007 data not available). **RESULTS:** The overall, annual estimate of inpatient, privately-insured pediatric colonoscopies was similar between NHDS and MarketScan®; however, NHDS estimates were not statistically reliable and differed dramatically from the prior year (overall estimate was 5.6 times higher than 2006). The overall estimate from MarketScan® was approximately 4.3 times higher than KID with estimates by age also higher; 2.8 times for age <1 to 4.2 times for age range 15–17. The KID database reported that approximately 50% of colonoscopies were performed in pediatric hospitals. **CONCLUSIONS:** The estimates were markedly different between MarketScan® and KID, and were not statistically reliable in NHDS. Low representation of pediatric hospitals that perform a large number of colonoscopies in this population possibly led to inconsistent or underestimated projections in NHDS and KID, respectively. Researchers should be informed about the frequency of the procedure of interest and representativeness of the population in the data when selecting a data source. Further research is warranted with other low-volume procedures performed in specialty populations to substantiate these findings.

#### Surgery – Clinical Outcomes Studies

#### PSU1

#### FREQUENCIES, COSTS AND COMPLICATIONS OF CATHETER ABLATIONS FOR PEDIATRIC TACHYCARDIA: RESULTS FROM A NATIONAL PEDIATRIC INPATIENT DATABASE (YEARS 2000–2006)

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**OBJECTIVES:** Over the last two decades, catheter ablation (CA) has revolutionized the treatment of pediatric tachycardia by providing a relatively safe alternative to open-heart surgery or lifelong pharmacotherapy. Despite its high success rate, however, CA has some risk of major complications, such as complete or second-degree atrioventricular block, and a higher risk of minor complications, such as hematoma. No study to date has estimated national frequencies and costs for CA and its complications in children. The objectives were to 1) determine the frequency of CA; 2) determine the extent of major and minor complications associated with CA; 3) estimate the average cost and length of stay (LOS) for children undergoing CA; and 4) predict the likelihood of major complications based on patient and hospital characteristics. **METHODS:** Data were obtained from the Kids' Inpatient Database (KID) for the years 2000, 2003, and 2006. Discharges were selected if CA (ICD-9 code 37.34) was listed as a primary or secondary procedure. Costs were computed using the KID cost-to-charge ratios. Logistic regression was used to predict the odds of major complications. **RESULTS:** In 2000, there were 1977 pediatric CAs; in 2003, there were 2049; and, in 2006, 2254. CAs involving children 0–11 months old increased 2.8 fold between 2000 and 2006. The percentage of visits involving CA complications ranged from 5.56% in 2000 to 7.72% in 2006. In 2006, the mean cost and mean LOS for visits with CA were \$19,425 (±\$1,022) and 2.39 (±0.2) days, respectively. The odds of major complications from CA for atrial tachycardia were twice ( $p < 0.01$ ) that of supraventricular tachycardia. **CONCLUSIONS:** In 2006, the national inpatient cost of CA and its complications totaled \$43,783,950. Since major complications are significantly more likely in young children (up to 6 years old), caution is required as more such procedures are performed in this age group.

#### PSU2

#### USING ELECTRONIC MEDICAL RECORDS TO IDENTIFY POTENTIAL PREDICTORS FOR BARIATRIC SURGERY SUCCESS

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**OBJECTIVES:** Bariatric surgery for the treatment of obesity and its underlying comorbid conditions is a well-tolerated and safe procedure. While a surgical approach is becoming the recommended method of treatment for morbid obesity, not all patients experience significant improvement. The objectives of this study were to utilize the GE Centricity electronic medical records (EMR) database to perform a retrospective cohort analysis on weight loss over time in patients with a record of having laparoscopic gastric banding or bypass surgery to identify predictors of weight loss following bariatric surgery. **METHODS:** Analyzable patient records were drawn from the GE Centricity database from January 1990 through March 2010. To be eligible for inclusion, patients had a recorded CPT Procedure Code of 43644/43645 or 43770;  $\geq 18$  years of age; and a valid recorded BMI within 6 months prior to procedure and at least one time point post surgery. Univariate and multivariable analyses were performed using SAS version 9.2. **RESULTS:** There were some notable pre-surgery differences between bypass and band cohorts, including age, weight, BMI, selected comorbid conditions and use of antidepressants. Patients with pre-op BMI values of less than 30 did not experience sustained weight loss, on average, regardless of surgery type. Patients with pre-surgery BMI values of 30 to less than 35 fared better with banding (20+ % BMI loss) than with bypass (5% BMI gain) at 2+ years post surgery. Finally, patients with pre-surgery BMI values of 35 and above had greater success, on the whole, with bypass surgery. **CONCLUSIONS:** The percent BMI loss over time by four cohorts of pre-surgery BMI show a trend that may be useful in predicting treatment success as defined by weight loss. This analysis of EMRs demonstrates potential clinical benefits when evaluating laparoscopic gastric bypass and banding in a real world setting.

#### PSU3

#### LONG-TERM CLINICAL EFFECTIVENESS AND STABILITY OF LASIK AND SURFACE ABLATION IN KOREA: A SYSTEMATIC REVIEW APPROACH

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**OBJECTIVES:** This study is aimed to provide evidence for clinical effectiveness and stability after Laser in situ keratomileusis (LASIK) and surface ablation surgery (LASEK: Laser-Assisted Subepithelial Keratectomy, PRK: photorefractive keratectomy) for myopia in Korea. **METHODS:** We searched electronic database including Ovid-Medline, EMBASE, the Cochrane Library and Korean domestic database such as Kmbase, Korea Med, NDSL, Kisti, KISS, and KJO (Journal of The Korean Ophthalmological Society). Two independent reviewers extracted data and assessed the quality using MINORS (Methodological index for Non-Randomized Studies). The changes of UCVA (uncorrected visual acuity) and manifest refractive from pre-surgery were estimated using the random-effect model. Cochrane-Q-statistic and I<sup>2</sup>-statistic were used to assess heterogeneity. Subgroup analyses were performed by length of follow-up (from 24 month to 84 month) and myopia degree under -6D (diopter) and over -6D. **RESULTS:** Fifteen observational studies were included for meta analysis and all study patients were Korean. After LASIK surgery, compare to before surgery, UCVA was improved 0.5 decimal in high myopia group (95% CI: 0.20–0.70). According to subgroup analysis in high myopia group, the group of -6D ~ -10D UCVA was improved 0.63 decimal, the group of over -10D was improved 0.27 decimal. Also, after surface ablation surgery, UCVA change in high myopia group (over -6D) was 0.83 decimal and in mild myopia group (under -6D) was 0.61 decimal. In addition to UCVA change was decreased over follow up time. However, after surface ablation surgery manifest refractive change was 7.45 diopter in high myopia and 4.00 diopter in mild myopia group. Also, over follow up time, refractive change was decreased. **CONCLUSIONS:** This study provides the evidence that UCVA was decreased according to over time and in high myopia group. Also, Refractive change was fallen down in compliance with over time, but increased in high myopia group. Our study is the first one to evaluate clinical effectiveness and stability of LASIK and surface ablation surgery in Korea through systematic review.

#### PSU4

#### SURGEON'S VOLUME-OUTCOMES RELATIONSHIP FOR LOBECTOMIES AND WEDGE RESECTIONS FOR CANCER USING VIDEO-ASSISTED THORACOSCOPIC TECHNIQUES

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**OBJECTIVES:** This study quantifies the benefits of surgeon's volume on outcomes in lung surgery: lobectomies and wedge resections. The goal of this analysis is to analyze the effect of technique-specific experience (VATS) on cost, utilization and adverse events. **METHODS:** This study utilizes the Premier hospital database which contains clinical and utilization information on patients receiving care in over 600 US hospitals. Eligible patients were those of any age undergoing lobectomy or wedge resection using VATS for cancer treatment. Volume measures use addi-